

REMARKS

This is a response to the Final Official Action dated November 2, 2006. Reconsideration of the above-identified application in view of the preceding amendments and the following remarks is respectfully requested.

Claims 1-5, 8, 12-17 and 21-22 are pending. Claims 6, 7, 9-11 and 18-20 are cancelled. Claims 1-5, 8, 12-13, 15 and 22 are amended.

Applicants would like to thank the Examiner for the courtesies extended during the interview of January 11, 2007. As a result of the interview, Applicants now submit a response that should distinguish over the applied references. Specifically, Applicants have amended the independent claims to clarify that the second downstream support layer comprises an extruded apertured film having ribs **formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself.** Such amendment is supported at page 6, lines 9-12, page 11, lines 8-16, page 18, lines 24-29 and original claim 19, line 2, with respect to having ribs formed on one side. The below quote is from page 11, lines 8-16 and supports the amendments relating to the feature of the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself.

According to the present invention, the second downstream support layer is in contact with the first downstream support layer and is fabricated so as to facilitate lateral fluid flow. In accordance with a preferred embodiment, the second downstream support layer is fabricated from an extruded apertured film material, and preferably **an apertured film material having rib(s) formed on one side.** The rib(s) advantageously **maintain a gap when the pleated filtration media is folded onto itself,** thereby greatly improving lateral fluid flow. A preferred material for use in fabricating the second downstream support layer is Delstar Delnet RC-0707-24P. [Emphasis added]

Additionally, Applicants have amended the independent claims to clarify that each pleat comprises a microporous membrane filtration media. Such amendment is supported at page 9, lines 23-27 as quoted below.

The filtration media is typically fabricated from a **microporous filtration membrane** having a pore size of about 0.1 microns to about 10 microns. The pore size is typically characterized by a bubble point method, as is known in the art. The filtration medium can be fabricated from conventional filtration materials, such as expanded Teflon,

nylon, polyether sulfone, polyvinylidene difluoride and the like.
[Emphasis added]

Even further, Additionally, Applicants have amended independent claim 1 to clarify that the first downstream pleat support layer is a spunbond material. Such amendment is supported at page 10, lines 8-12 as quoted below.

The first downstream support layer is interposed between the filtration media and the second downstream support layer. In an exemplary embodiment of the present disclosure, the first downstream support layer is fabricated using a material made by the conventional **spunbond**, spunlace, airlaid or wetlaid techniques. [Emphasis added]

Applicants respectively submit that, with the entry of the present amendments, the application is in condition for allowance and an action acknowledging same is respectively requested.

In the final rejection, the Examiner rejected the claims as follow:

112 Rejections

Claims 1-17 and 20-22 stand rejected under 35 USC § 112, first paragraph, as failing to comply with the written description requirement as follows:

The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The limitations added to each of the independent claims requiring a primary strand or a rib formation running in the machine direction does not find support in the application as originally filed and is considered to be new matter.

Claims 1-17 and 20-22 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention as follows:

The following terms lack antecedent basis: "the primary strand or rib formation" and "the machine direction (claims 1, 12, 13, and 22). Claims 2-11, 14-17 and 20-21 are also rejected since they suffer the same defects as the claims from which they depend.

As agreed during the Interview, Applicants have eliminated the limitation requiring a primary strand or a rib formation running in the machine direction added to

each of the independent claims by the previous response. Applicants believe that such amendments now render the 35 USC § 112, first and second paragraph, rejections moot and an action acknowledging same is respectfully requested.

Further, Applicants have amended each of the independent claims to include, among other features, that the second downstream support layer comprises an extruded apertured film having ribs **formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself.**

103 Rejections

Claims 1-4, 6-7, 9-14, 16-17 and 20-22 stands rejected under 35 USC § 103(a) as being unpatentable over Miller et al. (USP 5,552,048) in view of Rasmussen (USP 3,954,933) as follows:

6. Claims 1-4, 6-7, 9-14, 16-17 and 20-22 stands rejected under 35 USC § 103(a) as being unpatentable over Miller et al. (USP 5,552,048) in view of Rasmussen (US 3,954,933). Miller teaches a filter element including a filter media 23, an upstream support 21 and a multi-layer downstream support 22 and 24 (note that the cushioning layer can be between the filter layer and either of the upstream and downstream supports, see col. 4, lines 17-21). The second downstream support layer 24 includes "ribs" 25 [as in claims 1, 6, 12, 13 and 22]. The cushioning layer (or first downstream support, see col. 8, lines 42-45) is a thin, highly porous, nonwoven, polyester layer made by a wetlaid process (col. 5, lines 29-46) [as in claims 7, 9-10, 14 and 16-17]. The examiner considers such a layer made by the same process and material disclosed by the applicant and having a thickness less than 100 microns yet being highly porous as having its surface contact points "minimized". As shown in e.g. figures 1 and 6, the filter element includes a perforated core, an outer cage and end caps [as in claims 13 and 20-21]. The filter media is pleated to have longitudinally-extending, radial pleats [as in claims 2-3].

Although Miller teaches his second downstream support can be *any* woven or nonwoven material (col. 4, lines 39-40) and cites an extruded, apertured, polymeric, mesh having "ribs" 25 as an example, he doesn't mention the layer being an extruded apertured film. However, such is taught by Rasmussen (U.S. 3,954,933). As shown in figure 5 below and also figures 2-3, Rasmussen teaches a layer comprising an extruded, apertured, polymeric film having ribs 1 and portions 2, 3 between apertures [as in claims 1, 11, 13, and 22]. It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to have at least the second downstream support layer of Miller to be the film layer of Rasmussen, since Rasmussen teaches the benefits of a reinforcement that is thin, strong, and inexpensive and that *can be used in filters* (col. 1, lines 8-13). The direction of the rib shown in figure 5

of Rasmussen is taken by the examiner to be the "machine direction".

As for claim 4, Miller teaches the filter media can be in the form of a membrane (col. 5, line 52). He also teaches that the membrane can be *any pore size* (col. 5, lines 58-59) but does not specifically teach a microporous membrane having a pore size of about 0.1 to about 10 microns. However, such would have been obvious to the skilled man depending upon the nature of the fluid being filtered, the nature and size of the contaminants in the fluid, and the acceptable pressure drop across the filter element-as taught by Miller (col. 5, lines 47-50).

7. Claims 5, 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Miller in view of Kawano et al. (U.S. 6,808,553). These claims add the limitations of a filter media of Teflon (PTFE), among others and the nonwoven support layer being laminated to the media. Kawano teaches a polyester, nonwoven, support layer laminated to a PTFE filter media (col. 1, lines 32-33; col. 4, lines 30-44). It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to have the first downstream support layer of Miller to be laminated a PTFE filter media, since Kawano teaches the benefit of such a laminate exhibiting a high collection efficiency compared with a glass fiber medium under the same pressure loss (col. 1, lines 32-35).

Response to Arguments

8. Applicant's arguments filed 8-28-2006 have been fully considered but they are not persuasive because of the following reasons:

In order to distinguish the extruded mesh of Miller's downstream support material from the apertured film of applicant's support material, the applicant has amended the claims to require "a primary strand or a rib formation running in the machine direction". He argues that the primary strands made in a process to make an extruded mesh would necessarily run in a diagonal direction to the web direction. Firstly, applicant's new limitation is considered to be new matter. Though applicant seems to argue that such is an inherent structural result in a process to create an apertured film, he is reminded that "To establish inherency, the *extrinsic evidence* must make clear that the missing descriptive matter is *necessarily present* in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established *by* probabilities or *possibilities*. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Applicant has not presented any concrete extrinsic evidence that such characteristics are "necessarily present" in *all* apertured films. Secondly, Miller's support material is not

limited to extruded mesh materials and specifically cites that the support can be any woven or nonwoven material (col. 4, line 39-40). Thirdly, Rasmussen does teach an apertured, polymeric film such that upon modification of Miller to include the film of Rasmussen, any alleged inherent characteristics would be present. In addition, the examiner contends that the benefits cited by Rasmussen (i.e. reinforcement that is thin, strong, and inexpensive and that can be used in filters) are sufficient motivation for modifying the primary reference. Applicant's nesting configuration argued on page 10 is not claimed and does not find support in the originally-filed application.

The Examiner cites Miller (US 5,552,048) again, which was considered in previous arguments. He states that the disclosures below, when combined with Miller, render our disclosure, an obvious extension of Miller.

According to the Examiner, Rasmussen (US 3,954,933) describes a perforated film-like structure with ribs. The Examiner states that this material is structurally the same as the apertured film as described in our application and therefore one of reasonable skill in the art could extend this disclosure to the Miller patent and obviously arrive at our disclosure.

Furthermore, it is difficult to match the process described in the Rasmussen application specifically to the apertured **films having ribs formed on one side, the ribs maintaining a gap when the microporous membrane filtration media is folded onto itself**, that have been demonstrated in the present disclosure to enable the claimed invention. Specifically, we cannot be certain that the process taught in Rasmussen matches the process used to make the Delstar apertured film and thus, we consider the Examiners position to lack merit. [Emphasis added]

Apertured films, as disclosed in the present application, have been available for sometime and were recognized as filtration support layers well prior to the present inventors' recognition of their applicability to solve the problems addressed in the present disclosure. In fact, a review of the two applied references shows that the Rasmussen reference was filed in the United Kingdom more than eighteen (18) years earlier than the primary Miller reference. Thus, it would appear that Miller had every opportunity to utilize the teachings of Rasmussen in the embodiments described in his Patent but failed to do so. In reality, it was not until the filing of the present application in 2002, nearly thirty two (32) years after Rasmussen and nearly fourteen (14) years after Miller that some one recognized that apertured film **having ribs formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself** provided the advantages as described in the present application. Applicants

respectively submit that, if the combination of Miller and Rasmussen were so obvious, one of the inventors in the highly competitive liquid filtration industry would have long ago so recognized, certainly much sooner than the nearly thirty two (32) years that Rasmussen has been available to the public and the even longer time that apertured film has been available as filtration support layers. [Emphasis added]

Since Applicants were the **first** to so recognize and demonstrate, it would appear that the combination **was not obvious**, because, if the combination were obvious, the claimed combination would have long ago been made available to the public. In view thereof, Applicants respectfully submit that the claims as presently amended are allowable and an action acknowledging same is respectfully requested. [Emphasis added]

It is our position that particular nonwoven supports in combination with the apertured films **having ribs formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself** as described in the present application have a beneficial effect on product flow. As shown in the analysis previously provided to the Examiner, that same effect is not achieved with the combination of supports as described in Miller. Miller *et al.* do not mention apertured films in their disclosure even though Rasmussen had been publicly available for approximately eighteen (18) years. It is further our position that treating apertured films, in the context of the present disclosure, as equivalent to netting and other supports, as the Examiner has been attempting to do, runs counter to the experimental evidence previously presented to the Examiner. In actual fact, such supports are not equivalent in the context of the present application, which is precisely the basis of our claims. Prior to the present disclosure, the expectation that apertured films in combination with nonwoven supports would have this beneficial property was clearly **not recognized** by Miller or anyone else. [Emphasis added]

Miller discloses a number of combinations of supports, including one or two supports upstream and one or two supports downstream, **all for the purpose of protecting the filtration layer**. Miller's disclosure provides no specific motivation even "to try" apertured films **for the purpose of improving flow**, much less be obvious to do so. Nor does Miller's technical vocabulary share a common technical vocabulary with Rasmussen. There is no particular motivation that would direct one from Miller to Rasmussen. [Emphasis added]

As the Examiner must know, one could attempt "to try" all support materials in all combinations according to Miller with one or two upstream support and one or two downstream supports, but this represents a significant number of

combinations (as will be shown below) but, as the Examiner knows, “obvious to try” a modification or combination of references **does not** establish Prima Facie Obviousness, at least **not according to the CCPA**. [Emphasis added]

As the Examiner knows, the Examiner carries the burden under Section 103 to establish a *prima facie* case of obviousness, *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and must show that the references relied on teach or suggest all of the limitations of the claims. *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970). "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." *Carella v. Starlight Archery*, 804 F.2d 135, 231 U.S.P.Q. 375 (Fed. Cir. 1986). There must be some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine the references in the manner suggested. *See, Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 U.S.P.Q.2d 1294 (Fed. Cir. 1997). *Fromson v. Anitec Printing Plates, Inc.*, 132 F.3d 1437, 45 U.S.P.Q.2d 1269 (Fed. Cir. 1997).

In this instance, the Examiner cannot establish a *prima facie* case of obviousness and has admitted that the primary reference relied upon does not teach or suggest all of the limitations of the amended independent claims. Since the secondary references cannot make up for the deficiencies of the primary applied reference, Applicants submit that all remaining claims are allowable. Specifically, there is considerable difference between the **extruded apertured film with ribs formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself** as required by the present independent claims and the **extruded mesh/net with ribs on both sides** as taught by the primary Miller reference. Accordingly, the independent claims, and each of the claims depending respectively therefrom, are not rendered obvious by the combination of Miller et al. (“743) in view of any of the applied secondary references. Therefore, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested for the following reasons. [Emphasis added]

As is also known, CCPA and Federal Circuit case law provide the grounds for attacking an obviousness rejection for want of a *prima facie* showing. One such ground for attacking an obviousness rejection for want of a *prima facie* showing can be expressed as follows:

Expectation of Success; "Obvious to Try" a Modification or Combination of References Does Not Establish Prima Facie Obviousness

Obviousness does not require absolute predictability but a reasonable expectation of success is necessary. *In re Clinton*, 527 F.2d 1226, 188 USPQ 365 (CCPA 1976).

Not only must there be some reasonable expectation of success to support a §103 combination of references rejection, the prior art or surrounding circumstances must have made the proposed prior art combination obvious to do rather than obvious to try. *In re Tomlinson*, 150 USPQ 623 (CCPA 1966). The court in *Tomlinson* considered an invention that related to the use of *polypropylene* in connection with other compounds. The prior art disclosed using *polyethylene* in combination with these compounds. Because of the close similarity of polypropylene and polyethylene, the PTO concluded that it would have been obvious for a skilled chemist to try to stabilize polypropylene with a known stabilizer for polyethylene. The court rejected this conclusion, explaining as follows:

Our reply to this view is simply that it begs the questions, which is obviousness under Section 103 of compositions and methods not of the direction to be taken in making efforts or attempts. Slight reflection suggests we think that there is usually an element of "obviousness to try" in any research endeavor, that it is not undertaken with complete blindness but rather with some semblance of a chance of success, and that patentability determinations based on that as the test would not only be contrary to the statute but would result in a marked deterioration of the entire patent system as an incentive to invest in those efforts and attempts which go by the name "research." *Id.* at 626. [Emphasis added]

Accordingly, obviousness cannot be predicated upon what a person skilled in the art might find obvious to try, but only on what the prior art would have led a person skilled in the art to do. See also *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

In *In re Goodwin*, 576 F.2d 375, 198 USPQ 1 (CCPA 1978), the invention related to the use of carbon monofluoride as a glass mold lubricant at temperatures in range of 1000°C. The prior art disclosed (1) the use of solid carbon monofluorides as lubricants at temperatures of up to 800°C, and (2) the use of lead compounds to lubricate glass molds at higher temperatures. The PTO rejected the claims based on the premise that it would have been obvious to combine these two teachings and use carbon

monofluorides as mold lubricants. The court recognized that a person of ordinary skill in the art might have *tried to* use carbon monofluoride as a mold lubricant, but the prior art did not suggest such. In fact, the prior art suggested just the opposite, namely that carbon monofluoride may not be stable above 800°C and, therefore, may not be suitable as a lubricant at glass molding temperatures.

Thus, while someone might fortuitously try carbon monofluoride in glass molding, there was no teaching that would lead one of ordinary skill in the art to use carbon monofluoride as a glass mold lubricant.

In summary, "obvious to try" is an improper basis for a §103 rejection when there is no suggestion or expressed expectation of success in the prior art that would have led one to perform the experimentation in the first place. When such a suggestion or expressed expectation of success does exist in the prior art, then it would have been obvious to do (not merely obvious to try), and that is a proper basis for a §103 rejection. [Emphasis added]

In the present Application, Applicants can find only one mention of filters in the Rasmussen reference, that being at column 1, line 12 reproduced below:

The present invention relates to a reticular structure derived from a polymer film. There is a need for thin, strong and cheap reticular structures, in particular for reinforcement in disposable fabrics, for airtransmitting wrapping material, carpet backing, **filters** and the like. Several patents and other treatments of the subject suggest that the route over a film would be the most suitable, but because of principal drawbacks or complications in developments, neither of these products or methods have been industrialized on a scale which has any proportion to the supposed market for products of this kind. [Emphasis added]

Based upon the inclusion of a single mention of filters in a laundry list of possible applications, the Examiner states in his Response to Arguments as follows:

...Thirdly, Rasmussen does teach an apertured, polymeric film such that upon modification of Miller to include the film of Rasmussen, any alleged inherent characteristics would be present. In addition, the examiner contends that the benefits cited by Rasmussen (i.e. reinforcement that is thin, strong, and inexpensive and that can be used in filters) are sufficient motivation for modifying the primary reference.

As the Examiner may recall, Applicants questioned above the viability of this single mention of filters providing sufficient motivation for those skilled in the art to use the teaching of Rasmussen in filters since no one in the highly competitive filtration

industry did so during the last thirty some years. The need for products that are capable of “reinforcement that is thin, strong and inexpensive and that can be used in filters” has long been and is currently being sought by those skilled in the filtration art. However there are presently possibly hundreds of thousands of potential candidates for products that could provide these benefits, yet the Examiner would have us believe that these obscure words in the first paragraph of a patent filed in 1970 provides a teaching that is more than an “obvious to try” and is, in his view, an “obvious to do,” without mentioning filters or filtration any where else in the entire specification. Applicants again ask the Examiner why; if the teachings of Rasmussen were so “obvious to do,” then why did Miller, the primary reference, not incorporate Rasmussen into his disclosure and why did it take those skilled in the filtration art over thirty years to do? Clearly, there is no suggestion or expressed expectation of success in Rasmussen that would have led one skilled in the filtration art to perform the experimentation in the first place and an action acknowledging same is respectfully requested.

The Examiner Failed to Prove a *Prima Facie* Case of Obviousness

As the Examiner knows, the PTO recognizes in MPEP §2142:

The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward with production of evidence in each step of the examination process. The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. *If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...* The initial evaluation of *prima facie* obviousness thus relieves both the examiner and applicant from evaluating evidence beyond the prior art and the evidence in the specification as filed until the art has been shown to suggest the claimed invention.

As Judge Newman astutely observed, "the determination of whether a *prima facie* case of obviousness has been made is a critical decision that controls the evidentiary procedures and burdens before the PTO." *In re Geiger*, 815 F.2d 686, 690, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987) (Newman, Circuit Judge, concurring).

The Examiner may reject a claim as obvious (albeit novel) over a single prior art reference on the ground that it would have allegedly been obvious to a person of ordinary skill in the art to change what the reference shows to that which is claimed. The change, it may be asserted, is a matter of standard design technique. More often, however, the PTO will assert obviousness on the basis of the combination of two or more

prior art references, *e.g.*, asserting that the primary reference teaches or shows most of that which is claimed and the secondary reference shows or suggests the element (s) or other teaching missing from the primary reference.

In either the single reference or plural references situation, “the examiner must step backward in time and into the shoes worn by the hypothetical ‘person of ordinary skill in the art’ when the invention was unknown and just before it was made.” MPEP §2142. The Examiner must put aside knowledge of the applicant's disclosure, refrain from using hindsight, and consider the subject matter claimed “as a whole.” *Id.*

As stated above, there is considerable difference between the **extruded apertured film with ribs formed on one side** as required by the present independent claims and the **extruded mesh/net with ribs on both sides** as taught by the primary Miller reference. Accordingly, the independent claims, and each of the claims depending respectively therefrom, are not rendered obvious by the combination of Miller et al. (“743) in view of any of the applied secondary references for the reasons discussed above and below. As the Examiner knows, the CCPA and Federal Circuit case law provide grounds for attacking an obviousness rejection for want of a *prima facie* showing.

CONCLUSION

The amended claims clearly recite a new combination of elements that have been clearly shown to be patentable over all applied references as well as the best references available in that the amended claims are new over all references by providing an **extruded apertured film** material having ribs **formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself**. As demonstrated by the Applicants with comparative experiments an **extruded apertured film** material having ribs **formed on one side, the ribs maintaining a gap when the pleated microporous membrane filtration media is folded onto itself** gives a surprisingly greater ability to “nest” when folded than the extruded mesh material of the applied primary reference and there is no disclosure, suggestion or teaching in Rasmussen sufficient to overcome the standards from “obvious to try” to “obvious to do” as articulated by the CCPA and the Federal Circuit and an action acknowledging same is respectfully requested.

Accordingly, for the foregoing reasons, reversal of the Final Rejection of Claims 1-5, 8, 12-17 and 21-22 is believed to be warranted and such action is earnestly solicited.

In view of the above, Applicants respectfully request that this amendment

after final rejection be entered in that Applicants believe that the application is in condition for allowance and/or better condition for appeal, and in that a significant number of claims have been cancelled, claims 6-7, 9-11 and 18-20, thereby significantly reducing the issues for consideration and for an appeal. Further, Applicants believe that no new issue has been introduced requiring further consideration or search by the Examiner and that no additional claims are presented without canceling any finally rejected claims. Finally, Applicants believe that the amended independent claims place the application in condition for allowance and an action acknowledging same is respectfully requested.

It is respectfully submitted that the application is now in condition for allowance. Reconsideration of the application is requested. Allowance of all pending claims, as amended, at an early date is earnestly solicited.

Applicants hereby petition for a two-month extension of time and authorization is given to charge the required fee, or credit any overpayment, to Deposit Account No. 13-3723.

Respectfully submitted,

4-2-07
Date

By: 
R. Thomas Payne, Reg. No.: 30,674
Telephone No.: 203-238-8737

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833